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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,689	12/21/2001	Makoto Ogusu	684.3303	6963
5514	7590	03/09/2004	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			LAVARIAS, ARNEL C	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/023,689

Applicant(s)

OGUSU ET AL.

Examiner

Arnel C. Lavarias

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 and 17-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-16 and 31-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings were received on 12/15/03. These drawings are acceptable.

Response to Amendment

2. The amendments to the specification and abstract of the disclosure in the submission dated 12/15/03 is acknowledged and accepted. In view of these amendments, the objections to the specification in Sections 8-10 of the Office Action dated 9/10/03 are respectfully withdrawn.
3. The amendments to Claims 4 and 7 in the submission dated 12/15/03 are acknowledged and accepted. In view of these amendments, the objections to the claims and the rejections to Claims 4-16, 31-37 under 35 U.S.C. 112, 2nd paragraph, in Sections 11-13 of the Office Action dated 9/10/03 are respectfully withdrawn.

Response to Arguments

4. The Applicants argue that, with respect to newly amended Claim 4, Iwasaki et al. fails to teach or reasonably suggest the second mask having a surface that is tilted obliquely in accordance with the shape of the slant portion of the diffractive optical element. The Examiner respectfully disagrees. A review of Figures 14 and 15 of Iwasaki et al. (in particular, see for example 125 or 127 of Figures 15(14), 15(20)) shows that a second mask (See 125, 127 in Figure 15) is tilted obliquely in accordance with the shape of the

Art Unit: 2872

slant portion of the diffractive optical element, wherein the slant portion of the diffractive optical element has previously been taken to be the slope of the staircase shape of a particular groove of the diffractive optical element (See for example Figure 15(26)).

Note that the slope of the slant portion of the diffractive optical element and the obliquely tilted region of the mask 125 located above the slant portion of the diffractive optical element are similar in direction.

5. Claims 4-16, 31-37 are rejected as follows.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 4-16, 31-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Iwasaki et al. (U.S. Patent No. 6475704), of record

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Iwasaki et al. discloses a method of manufacturing a diffractive optical element (See for example Figures 1, 2, 8, 14-15) by transferring a mask pattern to a workpiece, defining a shape of a vertical portion of the diffractive optical element by use of a first mask (See for example 22, 25 in Figure 1; 82 in Figures 14-15); defining a shape of a slant portion (It is noted that the slant portion is taken as the slope of the staircase shape of a particular groove of the diffractive optical element, e.g. as shown in Figure 1(10) or 15(26)) of the diffractive optical element by a second mask (See for example 26 or 28 in Figure 1; 125 in Figure 14(14); 127 in Figure 15(20)) and in a processing region determined by the first mask, wherein the second mask has a surface that is tilted obliquely in accordance with the shape of the slant portion of the diffractive optical element (See the slope of the slant portion of the diffractive optical element and the obliquely tilted region of the mask 125 located above the slant portion of the diffractive optical element are similar in direction, as shown for example in Figures 15(14) or 15(20)). Iwasaki et al. additionally discloses the shape of the vertical portion of the diffractive optical element being defined by transferring an edge portion of the first mask (See for example Figure 1(2)); the processing region being a region determined by transferring the edge portion of the first mask (See for example Figure 1(5) or 1(7); the first mask being made of a first and second materials (See 22, 25 in Figure 1; col. 4, line 46-col. 5, line 27; col. 6, lines 14-23; Claim 4) such as aluminum or chromium or nitride-based material, wherein, after a first processing region determined by the first material is processed, the first processing region is covered by the second material and, subsequently, the first material is removed and, wherein while using a portion from

Art Unit: 2872

which the first material has been removed as a second processing region, the first processing region determined by the first material is replaced by the second material to cause a processing region inversion (See for example Figures 1, 14-15); one of the first and second materials comprising a dual-layer having a chromium oxide film and a chromium film (See for example col. 8, lines 44-62); the inversion of the processing region being based on etch-back (See col. 4, line 46-col. 5, line 27; Claim 2); the second mask being a resist (See for example 26 or 28 in Figure 1; col. 4, line 46-col. 5, lines 27); and light being transmitted through the workpiece (See for example Figure 8). Iwasaki et al. additionally discloses a mold, diffractive optical element, optical instrument and exposure apparatus with the diffractive optical element, and device manufacturing method and device manufactured in accordance with the method (See for example Figures 1, 2, 5-11; col. 7, lines 30-45; col. 7, line 64-col. 11, line 25).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6534221 to Lee et al.

Lee et al. is being cited to evidence the use of masks for patterning diffractive optical elements on a substrate (See for example Figures 1, 3, 7, 13, 15).

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 2872

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 8:30 AM - 5 PM EST.

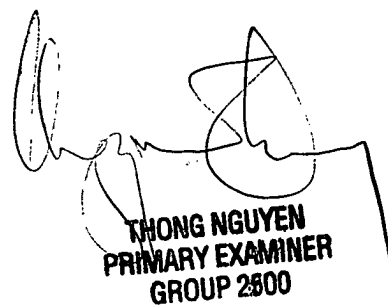
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2872

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnel C. Lavarias
2/25/04



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